

Research Proposal

Prof. Science

IoS

Universität Hamburg

Full Professor (W3)
permanent employment

Prof. Research

IoR

Universität München

Full Professor (W2)
permanent employment

1 State of the art and preliminary work

Discuss state-of-the-art and cite some work [1].

Preliminary work

The preliminary work of your group and others on the topic.

1.1 Project-related publications

Peer-reviewed articles, books, and journals

- [A 1] Jan Moritz Joseph et al. "Area and power savings via asymmetric organization of buffers in 3D-NoCs for heterogeneous 3D-SoCs". In: *Microprocessors and Microsystems* 48 (2017). Extended papers from the 2015 Nordic Circuits and Systems Conference, pp. 36–47. ISSN: 0141-9331. DOI: <https://doi.org/10.1016/j.micpro.2016.09.011>. URL: <http://www.sciencedirect.com/science/article/pii/S0141933116302319>.
- [B 1] L. Bamberg and A. Garcia-Ortiz. "High-Level Energy Estimation for Submicrometric TSV Arrays". In: *IEEE Transactions on Very Large Scale Integration (VLSI) Systems* 25.10 (2017), pp. 2856–2866. ISSN: 1063-8210. DOI: 10.1109/TVLSI.2017.2713601.

Patents

- [Pat 1] A. García-Ortiz E. John McGarry R. Dominguez Castro. *Circuits and Methods Allowing for Pixel Array Exposure Pattern Control*. US Patent 8,063,350. 2009.

2 Objectives and work program

2.1 Anticipated total duration of the project

The application period is 36 months; the support is requested for the whole 36 months. The favored starting date of funding is August 1st, 2019 or shortly after approval.

2.2 Objectives

Introduce your objectives. Don't forget your research hypothesis.

2.2.1 Outcomes

This section is just a suggestion, I usually like it a lot. Not required by standards.

2.2.2 Limitations of today's approach

This section is just a suggestion, I usually like it a lot. Not required by standards.

2.2.3 Potential for optimization

This section is just a suggestion, I usually like it a lot. Not required by standards.

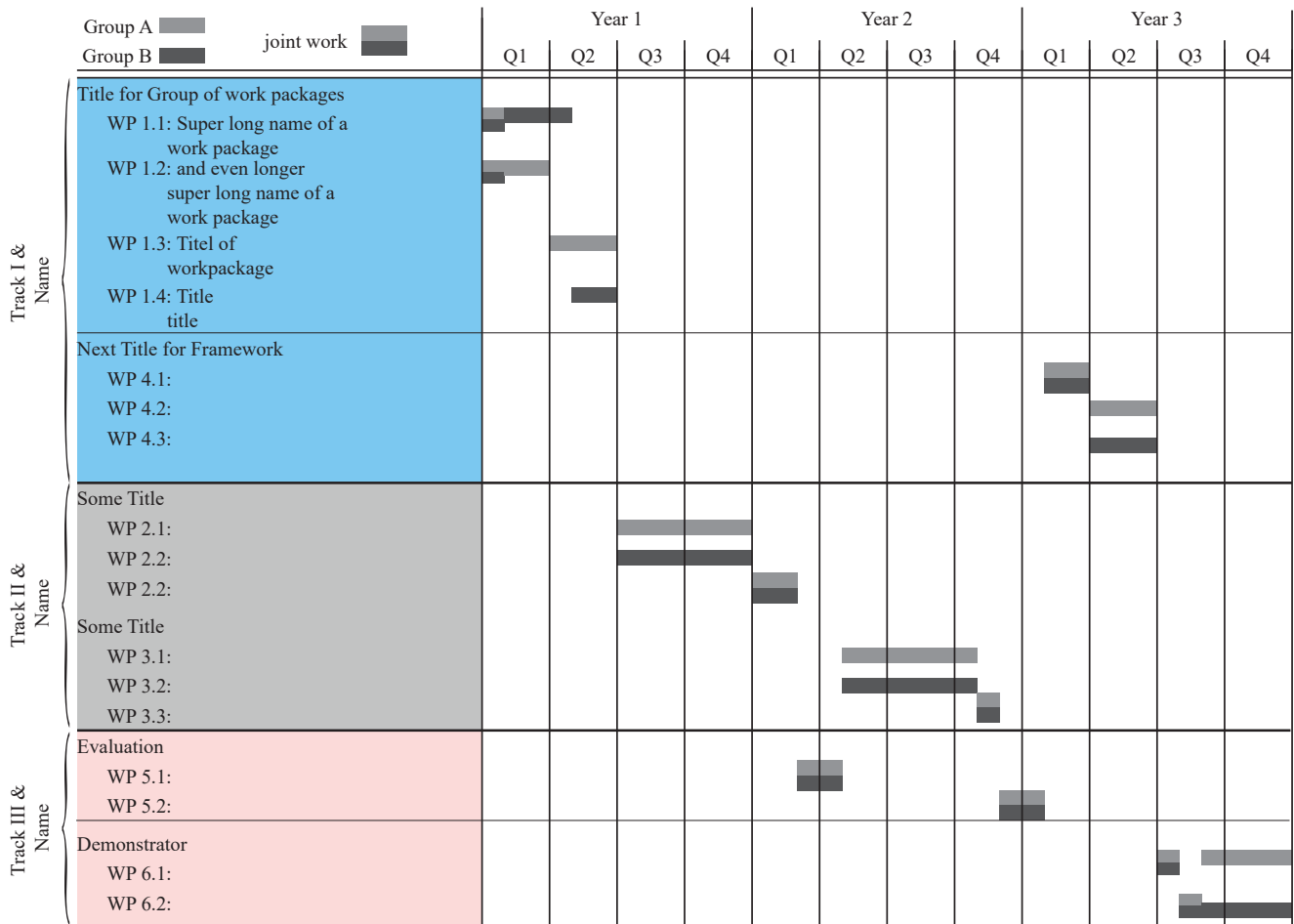


Figure 1: Project structure

2.3 Work program incl. proposed research methods

Maybe give a short introduction.

2.3.1 Work Packages

WP 1: Simulation and Exploration Framework (Track: Methodologies and Tools)

<i>WP 1.1</i>	<i>Title of this work package</i>	
Partners [pm]	IoS [3.5], IoR [0.5]	From M1 to M4
Dependencies	WP 1.1	

some description.

<i>WP 1.2</i>	<i>Title of this work package</i>	
Partners [pm]	IoR [3.5], IoS [0.5]	From M1 to M4
Dependencies	WP 1.1	

some description.

2.4 Data handling

No special measures are required beside the usual DFG guidelines for good scientific practice.

2.5 Other information

Not applicable.

2.6 Descriptions of proposed investigations involving experiments on humans, human materials or animals

Not applicable.

2.7 Information on scientific and financial involvement of international cooperation partners

Not applicable.

3 Bibliography

- [1] L. Benini and G. De Micheli. "Networks on chips: a new SoC paradigm". In: *Computer* 35.1 (2002), pp. 70–78. ISSN: 0018-9162. DOI: 10.1109/2.976921.

4 Requested modules/funds

We are applying for the "Basic Module" in the research grants programme.

4.1 Funding for staff

4.1.1 Research staff

Postdoctoral researcher or comparable Not applicable.

Doctoral researcher or comparable We apply for a total amount of €457,171.

For Prof. Science (Institute of Science–IoS) and Prof. Research (Institute of Research–IoR) we apply for €199,200 each for 36months of funding for one doctoral researcher. The researchers will work 100% of the standard work week on the project and conduct the research. Employing a researcher in wage group TVL E-13 for one year costs €398,400.

Position		Amount	Factor	Subtotal
Doctoral researcher at IoS	TVL E-13 per year	€66,400	3	€199,200
Doctoral researcher at IoR	TVL E-13 per year	€66,400	3	€199,200
Total				€398,400

Other research assistant Not applicable.

4.1.2 Non-academic staff member

Not applicable.

4.1.3 Miscellaneous staff

Support staff (research support staff and student assistants) We apply for a total amount of €58,770.72 for support staff.

For Prof. Science (IoS) we apply for funding of two student assistants to support the academic staff with implementation, simulation, and evaluation with the amount of €34,012.80. Each assistant will work 40 hours per month during the duration of the project. The pre-tax wage at IoS is €472.40 independent of the students degree.

For Prof. Research (IoR) we also apply for funding of two student assistants with the amount of €42,958.08. The pre-tax wage at IoR is €505.56 for bachelor students per month and €687.72 a for master student.

Position	Amount	Factor	Subtotal
Bachelor student at IoS, 40 hours	€472.40	36	€17,006.40
Master student at IoS, 40 hours	€472.40	36	€17,006.40
Bachelor student at IoR, 40 hours	€505.56	36	€18,200.16
Master student at IoR, 40 hours	€687.72	36	€24,757.92
Total			€58,770.72

Other staff Not applicable.

4.2 Funding for direct project costs

4.2.1 Equipment up to €10,000, software and consumables

We apply for a **total amount of €16,500** for equipment.

We apply for the amount of €5,500 for each of the groups (Prof. Science and Prof. Research) for a "Xilinx Virtex UltraScale FPGA VCU108 Evaluation Kit". An state-of-the-art FPGA board is required for prototyping. After finishing this project the prototyping boards can also be used for other research activities.

4.2.2 Travel

We apply for a **total amount of €20,000** for travel expenses.

We apply for funding of the expenses for conference travels to the amount of €8,000 for Prof. Science (IoS) for two European and two International conferences; we apply for funding of the expenses for conference travels to the amount of €8,000 for Prof. Research (IoR) for two European and two International conferences:

Position	Amount	Factor	Subtotal
European conference (IoS)	€1,500	2	€3,000
International conference (IoS)	€2,500	2	€5,000
European conference (IoR)	€1,500	2	€3,000
International conference (IoR)	€2,500	2	€5,000
Total			€20,000

In addition, for cooperation within this project we apply for €4,210 for Prof. Science (IoS) , €4,210 for Prof. Research (IoR). There are five joined work packages (WP 5.1, WP 5.2, WP 5.3, WP 7.3, WP 7.4) and five work packages requiring close cooperation (WP 1.3, WP 2.3, WP 3, WP 4, WP 7.2). Therefore we ask for the travel expenses for 10 meetings, in which two persons are visiting the project partner. We assume a duration of half a work week per meeting (2 nights). Thus, per person and trip two railway tickets, two nights at a hotel, and three daily allowances are required, which amounts to:

Position	Amount	Factor	Subtotal
Railway ticket, single trip per person	€65.00	40=10*2*2	€2,600
Accommodation per night and person	€80.00	40=10*2*2	€3,200
Daily allowance	€24.00	60=10*3*2	€1,440
Total			€8,240

4.2.3 Visiting researchers

Not applicable.

4.2.4 Experimental animals

Not applicable.

4.2.5 Other

Not applicable.

4.2.6 Project-related publication expenses

At least four open-access journal publications are expected. This requires additional fees for handling and open access services of about 1,500 EUR. Our universities employ an open access strategy already. However, researchers are encouraged to acquire additional funding for open access publishing. Therefore We apply for a **total amount of €1,500** to pay fees of journal publications. For Prof. Science (IoS) we apply for €750 and for Prof. Research (IoR) we apply for €750 as well.

4.3 Funding for instrumentation

Not applicable.

5 Project requirements

5.1 Employment status information

- **Prof. Science**, Institute of Science, Universität Hamburg, Full Professor (W2), permanent employment
- **Prof. Research**, Institute of Research, Universität München, Full Professor (W3), permanent employment

5.2 First-time proposal data

Not applicable.

5.3 Composition of the project group

- **Prof. Science**, Institute of Science, Universität Hamburg, Full Professor (W2), permanent employment
- **Prof. Research**, Institute of Research, Universität München, Full Professor (W3), permanent employment

5.4 Cooperation with other researchers

5.4.1 Researchers with whom you have agreed to cooperate on this project

Not applicable.

5.4.2 Researchers with whom you have collaborated scientifically within the past three years

- **Prof. Awesome**, The University of York (UK)
- **Prof. Cool**, Some other University

5.5 Scientific equipment

The following equipment is available at the *IoS* during the project:

- Some stuff
- even more stuff

The following equipment is available at the *IoR* during the project:

- Some stuff
- even more stuff

5.6 Project-relevant interests in commercial enterprises

Not applicable.

5.7 Project-relevant participation in commercial enterprises

Not applicable.

6 Additional information

Not applicable.